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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,757	04/21/2004	Oliver Maier	8540G-000217	5333
27572	7590	09/22/2006	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			CHUO, TONY SHENG HSIANG	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 09/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/828,757

Applicant(s)

MAIER, OLIVER

Examiner

Tony Chuo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 9-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 17-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, Claims 1-8 and 17-26 in the reply filed on 8/18/06 is acknowledged. Claims 9-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/18/06.

Drawings

2. The drawings filed on 4/21/04 are accepted by the examiner.

Specification

3. The disclosure is objected to because of the following informalities: on page 11, line 18, leak management system 24 should be changed to 24' and on page 11, line 20, second fluid circuit 33 should be changed to 22. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3 and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Imaseki et al (US 2002/0061426). Regarding claims 1 and 17, the Imaseki reference

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teaches a fuel cell system "1" comprising fuel cell "2"; a first fluid circuit comprising cooling path "3" and primary coolant circulating path "4" that is in fluid communication with the fuel cell "2" and has a first fluid flowing therethrough and includes a vapor-liquid separator "13" (first fluid reservoir) serving as a gas reservoir; and a second fluid circuit that includes a tank "15" (second fluid reservoir) comprising gas venting path "14" and coolant return path "16" that has a second fluid flowing therethrough wherein a fluid is transferred from first fluid reservoir to the second fluid reservoir during an over-pressure condition within the first fluid circuit (See paragraphs [0057],[0059],[0062] and Figure 2).

Regarding claims 2-3 and 18-19, it also teaches a vapor-liquid separator "13" that is located in the point of the primary coolant circulating path "4" where the pressure is relatively high and an orifice "18" (first relief mechanism) disposed in the gas venting path "14" between the first and second fluid reservoirs that selectively enables fluid communication between the first and second fluid reservoirs (See paragraph [0059],[0060]). Therefore, to balance the pressure between the first and second fluid reservoirs, gas that is trapped in the vapor-liquid separator is directed to the tank with the coolant as a mixture of vapor and fluid through the orifice in gas venting path "14" during an over-pressure condition (See paragraph [0022]).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 4-7 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imaseki et al (US 2002/0061426) in view of Corcoran (US 2003/0192315). The Imaseki reference is applied to claims 1-3 and 17-19 for reasons stated above. In addition, the reference also teaches an orifice "18" (second relief mechanism) in the coolant returning path "16" between the first and second fluid reservoirs wherein when a second pressure is achieved within the second fluid reservoir, the fluid flows through the second relief mechanism to the first fluid reservoir to relieve the second pressure (See paragraph [0076]). However, the reference does not expressly teach a first or second relief mechanism that selectively enables fluid communication between the first and second fluid reservoirs. The Corcoran reference teaches a pressure regulating main control valve "52" that controls the flow of fluid between the first container "16" and the second container "18" (See paragraph [0030]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Imaseki fuel cell system to include a first or second relief mechanism that selectively enables fluid communication between the first and second fluid reservoirs in order to better control the pressure differences between the first and second fluid reservoirs by using valves instead of orifices to balance the pressure between the first fluid reservoir and the second fluid reservoir. Examiner's note: The Corcoran reference is relevant to the Imaseki reference and the present application because it solves the same problem of regulating the pressure between two containers by flowing fluid from one container with higher pressure to another container with lower pressure.

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8. Claims 8 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imaseki et al (US 2002/0061426) in view of Wells et al (US 2003/0022045). The Imaseki reference is applied to claim 17 for reasons stated above. In addition, the Imaseki reference teaches a pressure valve "17" in fluid communication with tank "15" (second fluid reservoir) that exhaust the fluid to atmosphere when the tank inner pressure exceeds a given pressure (See paragraph [0062]). However, the reference does not expressly teach a relief mechanism in fluid communication with the first fluid reservoir that exhausts the fluid to atmosphere during critical pressure condition and a hydrogen sensor that detects a hydrogen content of the atmosphere and signals an alert if the hydrogen content achieves a threshold level. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Imaseki fuel cell system to include a relief mechanism in fluid communication with the first fluid reservoir that exhausts the fluid to atmosphere during critical pressure condition because rearrangement of part was held to have been obvious (In re Japikse 86 USPQ 70 (CCPA 1950)).

The Wells reference teaches a hydrogen concentration sensor "S5" that monitors the hydrogen concentration level in the ambient atmosphere surrounding the fuel cell stack and a microcontroller "40" that receives the sensor measurements such as hydrogen concentration. It is implicit in the teachings of Wells et al that the controller that is connected to a computer will signal an alert if the hydrogen content exceeds a threshold level. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Imaseki fuel cell system to include a hydrogen sensor that detects a hydrogen content of the atmosphere and signals an

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alert if the hydrogen content achieves a threshold level in order to improve the detection of hydrogen leaks or discharges from the fuel cell system to prevent a safety hazard.

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imaseki et al (US 2002/0061426) in view of Perry (US 6391485). The Imaseki reference is applied to claim 17 for reasons stated above. However, the reference does not expressly teach a pressure sensor that detects a combined pressure of the first and second fluid reservoirs and signals an alert if the combined pressure achieves a threshold level. The Perry reference teaches a pressure transducer "78" that is connected to the coolant supply conduit "52" which connects the coolant reservoir "50" to the fuel cell "11" (See Figure 4 and column 5, lines 33-37). It is implicit from the teachings of Perry that the pressure sensor connected to the controller would signal an alert if the pressure of the coolant reservoir exceeds a threshold level. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Imaseki fuel cell system to include a pressure sensor that detects a combined pressure of the first and second fluid reservoirs and signals an alert if the combined pressure achieves a threshold level in order to prevent a safety hazard by notifying the user when there's excess pressure in the cooling system.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC


RAYMOND ALEJANDRO
PRIMARY EXAMINER